

SEQUENCE LISTING

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 Zhang, Fang

<120> NOVEL ABCB9 TRANSPORTER AND USES THEREOF

<130> 100103.407C1

<140> US

<141> 2004-03-17

<150> 09/724,653

<151> 2000-11-28

<150> 60/167,930

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<170> PatentIn Ver. 2.0

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Glu Thr Ser Phe Phe Asp Glu Asn Arg Thr Gly Asp Leu Ile Ser Arg	
275 280 285	
ctg acc tcg gac acc acc atg gtc agc gac ctg gtc tcc cag aac atc	912
Leu Thr Ser Asp Thr Thr Met Val Ser Asp Leu Val Ser Gln Asn Ile	
290 295 300	
aat gtc ttc ctg cgg aac aca gtc aag gtc acg ggc gtg gtg gtc ttc	960
Asn Val Phe Leu Arg Asn Thr Val Lys Val Thr Gly Val Val Val Phe	
305 310 315 320	
atg ttc agc ctc tca tgg cag ctc tcc ttg gtc acc ttc atg ggc ttc	1008
Met Phe Ser Leu Ser Trp Gln Leu Ser Leu Val Thr Phe Met Gly Phe	
325 330 335	
ccc atc atc atg atg gtg tcc aac atc tac ggc aag tac tac aag agg	1056
Pro Ile Ile Met Met Val Ser Asn Ile Tyr Gly Lys Tyr Tyr Lys Arg	
340 345 350	
ctc tcc aaa gag gtc cag aat gcc ctg gcc aga gcg agc aac acg gcg	1104
Leu Ser Lys Glu Val Gln Asn Ala Leu Ala Arg Ala Ser Asn Thr Ala	
355 360 365	
gag gag acc atc agt gcc atg aag act gtc cgg agc ttc gcc aat gag	1152
Glu Glu Thr Ile Ser Ala Met Lys Thr Val Arg Ser Phe Ala Asn Glu	
370 375 380	
gag gag gag gca gag gtg tac ctg cgg aag ctg cag cag gtg tac aag	1200
Glu Glu Glu Ala Glu Val Tyr Leu Arg Lys Leu Gln Gln Val Tyr Lys	
385 390 395 400	
ctg aac agg aag gag gca gct gcc tac atg tac tac gtc tgg ggc agc	1248
Leu Asn Arg Lys Glu Ala Ala Ala Tyr Met Tyr Tyr Val Trp Gly Ser	
405 410 415	
ggg ctc aca ctg ctg gtg gtc cag gtc agc atc ctc tac tac ggg ggc	1296
Gly Leu Thr Leu Leu Val Val Gln Val Ser Ile Leu Tyr Tyr Gly Gly	
420 425 430	
cac ctt gtc atc tca ggc cag atg acc agc ggc aac ctc atc gcc ttc	1344

His	Leu	Val	Ile	Ser	Gly	Gln	Met	Thr	Ser	Gly	Asn	Leu	Ile	Ala	Phe		
	435						440					445					
atc	atc	tac	gag	ttt	gtc	ctg	gga	gat	tgt	atg	gag	tcc	gtg	ggc	tcc	1392	
Ile	Ile	Tyr	Glu	Phe	Val	Leu	Gly	Asp	Cys	Met	Glu	Ser	Val	Gly	Ser		
	450					455					460						
gtc	tac	agt	ggc	ctg	atg	cag	gga	gtg	ggg	gct	gct	gag	aag	gtg	ttc	1440	
Val	Tyr	Ser	Gly	Leu	Met	Gln	Gly	Val	Gly	Ala	Ala	Glu	Lys	Val	Phe		
465					470					475					480		
gag	ttc	atc	gac	cgg	cag	ccg	acc	atg	gtg	cac	gat	ggc	agc	ttg	gcc	1488	
Glu	Phe	Ile	Asp	Arg	Gln	Pro	Thr	Met	Val	His	Asp	Gly	Ser	Leu	Ala		
				485					490					495			
ccc	gac	cac	ctg	gag	ggc	cgg	gtg	gac	ttt	gag	aat	gtg	acc	ttc	acc	1536	
Pro	Asp	His	Leu	Glu	Gly	Arg	Val	Asp	Phe	Glu	Asn	Val	Thr	Phe	Thr		
			500					505					510				
tac	cgc	act	cgg	ccc	cac	acc	cag	gtc	ctg	cag	aat	gtc	tcc	ttc	agc	1584	
Tyr	Arg	Thr	Arg	Pro	His	Thr	Gln	Val	Leu	Gln	Asn	Val	Ser	Phe	Ser		
			515				520					525					
ctg	tcc	ccc	ggc	aag	gtg	acg	gcc	ctg	gtg	ggg	ccc	tcg	ggc	agt	ggg	1632	
Leu	Ser	Pro	Gly	Lys	Val	Thr	Ala	Leu	Val	Gly	Pro	Ser	Gly	Ser	Gly		
	530					535					540						
aag	agc	tcc	tgt	gtc	aac	atc	ctg	gag	aac	ttc	tac	ccc	ctg	gag	ggg	1680	
Lys	Ser	Ser	Cys	Val	Asn	Ile	Leu	Glu	Asn	Phe	Tyr	Pro	Leu	Glu	Gly		
545					550				555					560			
ggc	cgg	gtg	ctg	ctg	gac	ggc	aag	ccc	atc	agc	gcc	tac	gac	cac	aag	1728	
Gly	Arg	Val	Leu	Leu	Asp	Gly	Lys	Pro	Ile	Ser	Ala	Tyr	Asp	His	Lys		
				565				570						575			
tac	ttg	cac	cgt	gtg	atc	tcc	ctg	gtg	agc	cag	gag	ccc	gtg	ctg	ttc	1776	
Tyr	Leu	His	Arg	Val	Ile	Ser	Leu	Val	Ser	Gln	Glu	Pro	Val	Leu	Phe		
			580				585						590				
gcc	cgc	tcc	atc	acg	gat	aac	atc	tcc	tac	ggc	ctg	ccc	act	gtg	cct	1824	
Ala	Arg	Ser	Ile	Thr	Asp	Asn	Ile	Ser	Tyr	Gly	Leu	Pro	Thr	Val	Pro		
			595			600						605					
ttc	gag	atg	gtg	gtg	gag	gcc	gca	cag	aag	gcc	aat	gcc	cac	ggc	ttc	1872	
Phe	Glu	Met	Val	Val	Glu	Ala	Ala	Gln	Lys	Ala	Asn	Ala	His	Gly	Phe		
	610					615				620							
atc	atg	gaa	ctc	cag	gac	ggc	tac	agc	aca	gag	aca	ggg	gag	aag	ggc	1920	
Ile	Met	Glu	Leu	Gln	Asp	Gly	Tyr	Ser	Thr	Glu	Thr	Gly	Glu	Lys	Gly		
625					630					635				640			
gcc	cag	ctg	tca	ggt	ggc	cag	aag	cag	cgg	gtg	gcc	atg	gcc	cgg	gct	1968	
Ala	Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Val	Ala	Met	Ala	Arg	Ala		
				645					650					655			

ctg	gtg	cgg	aac	ccc	cca	gtc	ctc	atc	ctg	gat	gaa	gcc	acc	agc	gct	2016
Leu	Val	Arg	Asn	Pro	Pro	Val	Leu	Ile	Leu	Asp	Glu	Ala	Thr	Ser	Ala	
			660					665					670			
ttg	gat	gcc	gag	agc	gag	tat	ctg	atc	cag	cag	gcc	atc	cat	ggc	aac	2064
Leu	Asp	Ala	Glu	Ser	Glu	Tyr	Leu	Ile	Gln	Gln	Ala	Ile	His	Gly	Asn	
			675					680					685			
ctg	cag	aag	cac	acg	gta	ctc	atc	atc	gcg	cac	cgg	ctg	agc	acc	gtg	2112
Leu	Gln	Lys	His	Thr	Val	Leu	Ile	Ile	Ala	His	Arg	Leu	Ser	Thr	Val	
			690					695					700			
gag	cac	gcg	cac	ctc	att	gtg	gtg	ctg	gac	aag	ggc	cgc	gta	gtg	cag	2160
Glu	His	Ala	His	Leu	Ile	Val	Val	Leu	Asp	Lys	Gly	Arg	Val	Val	Gln	
						710					715				720	
cag	ggc	acc	cac	cag	cag	ctg	ctg	gcc	cag	ggc	ggc	ctc	tac	gcc	aag	2208
Gln	Gly	Thr	His	Gln	Gln	Leu	Leu	Ala	Gln	Gly	Gly	Leu	Tyr	Ala	Lys	
						725									735	
ctg	gtg	cag	cgg	cag	atg	ctg	ggg	ctt	cag	ccc	gcc	gca	gac	ttc	aca	2256
Leu	Val	Gln	Arg	Gln	Met	Leu	Gly	Leu	Gln	Pro	Ala	Ala	Asp	Phe	Thr	
						740									750	
gct	ggc	cac	aac	gag	cct	gta	gcc	aac	ggc	agt	cac	aag	gcc			2298
Ala	Gly	His	Asn	Glu	Pro	Val	Ala	Asn	Gly	Ser	His	Lys	Ala			
			755					760					765			

<210> 4
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 4
 Gly Pro Ser Gly Ser Gly Lys Ser Ser
 1 5

<210> 5
 <211> 12
 <212> PRT
 <213> Homo sapiens

<400> 5
 Leu Ser Gly Gly Gln Lys Gln Arg Val Ala Met Ala
 1 5 10

<210> 6
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 6

Arg	Ala	Leu	Val	Arg	Asn	Pro	Pro	Val	Leu	Ile	Leu	Asp	Glu	Ala	Thr
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<210> 7

<211> 762

<212> PRT

<213> Rattus sp.

<400> 7

Met	Arg	Leu	Trp	Lys	Ala	Val	Val	Val	Thr	Leu	Ala	Phe	Val	Ser	Met
1				5					10					15	
Asp	Val	Gly	Val	Thr	Thr	Ala	Ile	Tyr	Ala	Phe	Ser	His	Leu	Asp	Arg
			20					25					30		
Ser	Leu	Leu	Glu	Asp	Ile	Arg	His	Phe	Asn	Ile	Phe	Asp	Ser	Val	Leu
			35				40					45			
Asp	Leu	Trp	Ala	Ala	Cys	Leu	Tyr	Arg	Ser	Cys	Leu	Leu	Leu	Gly	Ala
	50					55					60				
Thr	Ile	Gly	Val	Ala	Lys	Asn	Ser	Ala	Leu	Gly	Pro	Arg	Arg	Leu	Arg
65					70					75					80
Ala	Ser	Trp	Leu	Val	Ile	Thr	Leu	Val	Cys	Leu	Phe	Val	Gly	Ile	Tyr
				85					90					95	
Ala	Met	Ala	Lys	Leu	Leu	Leu	Phe	Ser	Glu	Val	Arg	Arg	Pro	Ile	Arg
			100					105					110		
Asp	Pro	Trp	Phe	Trp	Ala	Leu	Phe	Val	Trp	Thr	Tyr	Ile	Ser	Leu	Ala
			115				120					125			
Ala	Ser	Phe	Leu	Leu	Trp	Gly	Leu	Leu	Ala	Thr	Val	Arg	Pro	Asp	Ala
	130					135					140				
Glu	Ala	Leu	Glu	Pro	Gly	Asn	Glu	Gly	Phe	His	Gly	Glu	Gly	Gly	Ala
145					150					155					160
Pro	Ala	Glu	Gln	Ala	Ser	Gly	Ala	Thr	Leu	Gln	Lys	Leu	Leu	Ser	Tyr
				165					170					175	
Thr	Lys	Pro	Asp	Val	Ala	Phe	Leu	Val	Ala	Ala	Ser	Phe	Phe	Leu	Ile
			180					185					190		
Val	Ala	Ala	Leu	Gly	Glu	Thr	Phe	Leu	Pro	Tyr	Tyr	Thr	Gly	Arg	Ala
			195				200						205		
Ile	Asp	Ser	Ile	Val	Ile	Gln	Lys	Ser	Met	Asp	Gln	Phe	Thr	Thr	Ala
	210					215					220				

Val 225	Val	Val	Val	Cys	Leu 230	Leu	Ala	Ile	Gly	Ser 235	Ser	Leu	Ala	Ala	Gly 240
Ile	Arg	Gly	Gly	Ile 245	Phe	Thr	Leu	Val	Phe 250	Ala	Arg	Leu	Asn	Ile	Arg
Leu	Arg	Asn	Cys	Leu 260	Phe	Arg	Ser	Leu 265	Val	Ser	Gln	Glu	Thr 270	Ser	Phe
Phe	Asp	Glu	Asn	Arg	Thr	Gly	Asp 280	Leu	Ile	Ser	Arg	Leu 285	Thr	Ser	Asp
Thr	Thr 290	Met	Val	Ser	Asp	Leu 295	Val	Ser	Gln	Asn 300	Ile	Asn	Ile	Phe	Leu
Arg 305	Asn	Thr	Val	Lys	Val 310	Thr	Gly	Val	Val	Val 315	Phe	Met	Phe	Ser	Leu 320
Ser	Trp	Gln	Leu	Ser 325	Leu	Val	Thr	Phe	Met 330	Gly	Phe	Pro	Ile	Ile	Met 335
Met	Val	Ser	Asn 340	Ile	Tyr	Gly	Lys	Tyr 345	Tyr	Lys	Arg	Leu	Ser 350	Lys	Glu
Val	Gln	Ser	Ala 355	Leu	Ala	Arg	Ala 360	Ser	Thr	Thr	Ala	Glu 365	Glu	Thr	Ile
Ser 370	Ala	Met	Lys	Thr	Val	Arg 375	Ser	Phe	Ala	Asn 380	Glu	Glu	Glu	Glu	Ala
Glu 385	Val	Phe	Leu	Arg	Lys 390	Leu	Gln	Gln	Val	Tyr 395	Lys	Leu	Asn	Arg	Lys 400
Glu	Ala	Ala	Ala 405	Tyr	Met	Ser	Tyr	Val	Trp 410	Gly	Ser	Gly	Leu 415	Thr	Leu
Leu	Val	Val	Gln 420	Val	Ser	Ile	Leu	Tyr 425	Tyr	Gly	Gly	His 430	Leu	Val	Ile
Ser	Gly	Gln	Met 435	Ser	Ser	Gly	Asn 440	Leu	Ile	Ala	Phe	Ile 445	Ile	Tyr	Glu
Phe 450	Val	Leu	Gly	Asp	Cys	Met 455	Glu	Ser	Val	Gly	Ser 460	Val	Tyr	Ser	Gly
Leu 465	Met	Gln	Gly	Val	Gly 470	Ala	Ala	Glu	Lys	Val 475	Phe	Glu	Phe	Ile	Asp 480
Arg	Gln	Pro	Thr	Met 485	Val	His	Asp	Gly	Arg 490	Leu	Ala	Pro	Asp	His 495	Leu
Glu	Gly	Arg	Val 500	Asp	Phe	Glu	Asn	Val 505	Thr	Phe	Thr	Tyr 510	Arg	Thr	Arg

Pro His Thr Gln Val Leu Gln Asn Val Ser Phe Ser Leu Ser Pro Gly
 515 520 525
 Lys Val Thr Ala Leu Val Gly Pro Ser Gly Ser Gly Lys Ser Ser Cys
 530 535 540
 Val Asn Ile Leu Glu Asn Phe Tyr Pro Leu Gln Gly Gly Arg Val Leu
 545 550 555 560
 Leu Asp Gly Glu Pro Ile Gly Ala Tyr Asp His Lys Tyr Leu His Arg
 565 570 575
 Val Ile Ser Leu Val Ser Gln Glu Pro Val Leu Phe Ala Arg Ser Ile
 580 585 590
 Thr Asp Asn Ile Ser Tyr Gly Leu Pro Thr Val Pro Phe Glu Met Val
 595 600 605
 Val Glu Ala Ala Gln Lys Ala Asn Ala His Gly Phe Ile Met Glu Leu
 610 615 620
 Gln Asp Gly Tyr Ser Thr Glu Thr Gly Glu Lys Gly Ala Gln Leu Ser
 625 630 635 640
 Gly Gly Gln Lys Gln Arg Val Ala Met Ala Arg Ala Leu Val Arg Asn
 645 650 655
 Pro Pro Val Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Ala Glu
 660 665 670
 Ser Glu Tyr Leu Ile Gln Gln Ala Ile His Gly Asn Leu Gln Arg His
 675 680 685
 Thr Val Leu Ile Ile Ala His Arg Leu Ser Thr Val Glu Arg Ala His
 690 695 700
 Leu Ile Val Val Leu Asp Lys Gly Arg Val Val Gln Gln Gly Thr His
 705 710 715 720
 Gln Gln Leu Leu Ala Gln Gly Gly Leu Tyr Ala Lys Leu Val Gln Arg
 725 730 735
 Gln Met Leu Gly Leu Glu His Pro Leu Asp Tyr Thr Ala Gly His Lys
 740 745 750
 Glu Pro Pro Ser Asn Thr Glu His Lys Ala
 755 760

<210> 8

<211> 743

<212> PRT

<213> Homo sapiens

<400> 8

Met	Ala	Ser	Ser	Arg	Cys	Pro	Ala	Pro	Arg	Gly	Cys	Arg	Cys	Leu	Pro	1	5	10	15
Gly	Ala	Ser	Leu	Ala	Trp	Leu	Gly	Thr	Val	Leu	Leu	Leu	Leu	Ala	Asp	20	25	30	
Trp	Val	Leu	Leu	Arg	Thr	Ala	Leu	Pro	Arg	Ile	Phe	Ser	Leu	Leu	Val	35	40	45	
Pro	Thr	Ala	Leu	Pro	Leu	Leu	Arg	Val	Trp	Ala	Val	Gly	Leu	Ser	Arg	50	55	60	
Trp	Ala	Val	Leu	Trp	Leu	Gly	Ala	Cys	Gly	Val	Leu	Arg	Ala	Thr	Val	65	70	75	80
Gly	Ser	Lys	Ser	Glu	Asn	Ala	Gly	Ala	Gln	Gly	Trp	Leu	Ala	Ala	Leu	85	90	95	
Lys	Pro	Leu	Ala	Ala	Ala	Leu	Gly	Leu	Ala	Leu	Pro	Gly	Leu	Ala	Leu	100	105	110	
Phe	Arg	Glu	Leu	Ile	Ser	Trp	Gly	Ala	Pro	Gly	Ser	Ala	Asp	Ser	Thr	115	120	125	
Arg	Leu	Leu	His	Trp	Gly	Ser	His	Pro	Thr	Ala	Phe	Val	Val	Ser	Tyr	130	135	140	
Ala	Ala	Ala	Leu	Pro	Ala	Ala	Ala	Leu	Trp	His	Lys	Leu	Gly	Gly	Gly	145	150	155	160
Gln	Gly	Gly	Ser	Gly	Asn	Pro	Val	Arg	Arg	Leu	Leu	Gly	Cys	Leu	Gly	165	170	175	
Ser	Glu	Thr	Arg	Arg	Leu	Ser	Leu	Phe	Leu	Val	Leu	Val	Val	Leu	Ser	180	185	190	
Ser	Leu	Gly	Glu	Met	Ala	Ile	Pro	Phe	Phe	Thr	Gly	Arg	Leu	Thr	Asp	195	200	205	
Trp	Ile	Leu	Gln	Asp	Gly	Ser	Ala	Asp	Thr	Phe	Thr	Arg	Asn	Leu	Thr	210	215	220	
Leu	Met	Ser	Ile	Leu	Thr	Ile	Ala	Ser	Ala	Val	Leu	Glu	Phe	Val	Gly	225	230	235	240
Asp	Gly	Ile	Tyr	Asn	Asn	Thr	Met	Gly	His	Val	His	Ser	His	Leu	Gln	245	250	255	
Gly	Glu	Val	Phe	Gly	Ala	Val	Leu	Arg	Gln	Glu	Thr	Glu	Phe	Phe	Gln	260	265	270	
Gln	Asn	Gln	Thr	Gly	Asn	Ile	Met	Ser	Arg	Val	Thr	Glu	Asp	Thr	Ser	275	280	285	

Thr	Leu	Ser	Asp	Ser	Leu	Ser	Glu	Asn	Leu	Ser	Leu	Phe	Leu	Trp	Tyr	290	295	300
Leu	Val	Arg	Gly	Leu	Cys	Leu	Leu	Gly	Ile	Met	Leu	Trp	Gly	Ser	Val	305	310	315
Ser	Leu	Thr	Met	Val	Thr	Leu	Ile	Thr	Leu	Pro	Leu	Leu	Phe	Leu	Leu	325	330	335
Pro	Lys	Lys	Val	Gly	Lys	Trp	Tyr	Gln	Leu	Leu	Glu	Val	Gln	Val	Arg	340	345	350
Glu	Ser	Leu	Ala	Lys	Ser	Ser	Gln	Val	Ala	Ile	Glu	Ala	Leu	Ser	Ala	355	360	365
Met	Pro	Thr	Val	Arg	Ser	Phe	Ala	Asn	Glu	Glu	Gly	Glu	Ala	Gln	Lys	370	375	380
Phe	Arg	Glu	Lys	Leu	Gln	Glu	Ile	Lys	Thr	Leu	Asn	Gln	Lys	Glu	Ala	385	390	395
Val	Ala	Tyr	Ala	Val	Asn	Ser	Trp	Thr	Thr	Ser	Ile	Ser	Gly	Met	Leu	405	410	415
Leu	Lys	Val	Gly	Ile	Leu	Tyr	Ile	Gly	Gly	Gln	Leu	Val	Thr	Ser	Gly	420	425	430
Ala	Val	Ser	Ser	Gly	Asn	Leu	Val	Thr	Phe	Val	Leu	Tyr	Gln	Met	Gln	435	440	445
Phe	Thr	Gln	Ala	Val	Glu	Val	Leu	Leu	Ser	Ile	Tyr	Pro	Arg	Val	Gln	450	455	460
Lys	Ala	Val	Gly	Ser	Ser	Glu	Lys	Ile	Phe	Glu	Tyr	Leu	Asp	Arg	Thr	465	470	475
Pro	Arg	Cys	Pro	Pro	Ser	Gly	Leu	Leu	Thr	Pro	Leu	His	Leu	Glu	Gly	485	490	495
Leu	Val	Gln	Phe	Gln	Asp	Val	Ser	Phe	Ala	Tyr	Pro	Asn	Arg	Pro	Asp	500	505	510
Val	Leu	Val	Leu	Gln	Gly	Leu	Thr	Phe	Thr	Leu	Arg	Pro	Gly	Glu	Val	515	520	525
Thr	Ala	Leu	Val	Gly	Pro	Asn	Gly	Ser	Gly	Lys	Ser	Thr	Val	Ala	Ala	530	535	540
Leu	Leu	Gln	Asn	Leu	Tyr	Gln	Pro	Thr	Gly	Gly	Gln	Leu	Leu	Leu	Asp	545	550	555
Gly	Lys	Pro	Leu	Pro	Gln	Tyr	Glu	His	Arg	Tyr	Leu	His	Arg	Gln	Val	565	570	575

Ala Ala Val Gly Gln Glu Pro Gln Val Phe Gly Arg Ser Leu Gln Glu
 580 585 590
 Asn Ile Ala Tyr Gly Leu Thr Gln Lys Pro Thr Met Glu Glu Ile Thr
 595 600 605
 Ala Ala Ala Val Lys Ser Gly Ala His Ser Phe Ile Ser Gly Leu Pro
 610 615 620
 Gln Gly Tyr Asp Thr Glu Val Asp Glu Ala Gly Ser Gln Leu Ser Gly
 625 630 635 640
 Gly Gln Arg Gln Ala Val Ala Leu Ala Arg Ala Leu Ile Arg Lys Pro
 645 650 655
 Cys Val Leu Ile Leu Asp Asp Ala Thr Ser Ala Leu Asp Ala Asn Ser
 660 665 670
 Gln Leu Gln Val Glu Gln Leu Leu Tyr Glu Ser Pro Glu Arg Tyr Ser
 675 680 685
 Arg Ser Val Leu Leu Ile Thr Gln His Leu Ser Leu Val Glu Gln Ala
 690 695 700
 Asp His Ile Leu Phe Leu Glu Gly Gly Ala Ile Arg Glu Gly Gly Thr
 705 710 715 720
 His Gln Gln Leu Met Glu Lys Lys Gly Cys Tyr Trp Ala Met Val Gln
 725 730 735
 Ala Pro Ala Asp Ala Pro Glu
 740

<210> 9
 <211> 724
 <212> PRT
 <213> Mus musculus

<400> 9
 Met Ala Ala His Val Trp Leu Ala Ala Ala Leu Leu Leu Leu Val Asp
 1 5 10 15
 Trp Leu Leu Leu Arg Pro Met Leu Pro Gly Ile Phe Ser Leu Leu Val
 20 25 30
 Pro Glu Val Pro Leu Leu Arg Val Trp Val Val Gly Leu Ser Arg Trp
 35 40 45
 Ala Ile Leu Gly Leu Gly Val Arg Gly Val Leu Gly Val Thr Ala Gly
 50 55 60
 Ala His Gly Trp Leu Ala Ala Leu Gln Pro Leu Val Ala Ala Leu Ser

65		70		75		80									
Leu	Ala	Leu	Pro	Gly	Leu	Ala	Leu	Phe	Arg	Glu	Leu	Ala	Ala	Trp	Gly
				85					90					95	
Thr	Leu	Arg	Glu	Gly	Asp	Ser	Ala	Gly	Leu	Leu	Tyr	Trp	Asn	Ser	Arg
			100					105					110		
Pro	Asp	Ala	Phe	Ala	Ile	Ser	Tyr	Val	Ala	Ala	Leu	Pro	Ala	Ala	Ala
		115					120					125			
Leu	Trp	His	Lys	Leu	Gly	Ser	Leu	Trp	Ala	Pro	Ser	Gly	Asn	Arg	Asp
	130					135					140				
Ala	Gly	Asp	Met	Leu	Cys	Arg	Met	Leu	Gly	Phe	Leu	Gly	Pro	Lys	Lys
145					150					155					160
Arg	Arg	Leu	Tyr	Leu	Val	Leu	Val	Leu	Leu	Ile	Leu	Ser	Cys	Leu	Gly
				165					170					175	
Glu	Met	Ala	Ile	Pro	Phe	Phe	Thr	Gly	Arg	Ile	Thr	Asp	Trp	Ile	Leu
			180					185					190		
Gln	Asp	Lys	Thr	Val	Pro	Ser	Phe	Thr	Arg	Asn	Ile	Trp	Leu	Met	Ser
		195					200					205			
Ile	Leu	Thr	Ile	Ala	Ser	Thr	Ala	Leu	Glu	Phe	Ala	Ser	Asp	Gly	Ile
	210					215					220				
Tyr	Asn	Ile	Thr	Met	Gly	His	Met	His	Gly	Arg	Val	His	Arg	Glu	Val
225					230					235					240
Phe	Arg	Ala	Val	Leu	Arg	Gln	Glu	Thr	Gly	Phe	Phe	Leu	Lys	Asn	Pro
				245					250					255	
Ala	Gly	Ser	Ile	Thr	Ser	Arg	Val	Thr	Glu	Asp	Thr	Ala	Asn	Val	Cys
			260					265					270		
Glu	Ser	Ile	Ser	Asp	Thr	Leu	Ser	Leu	Leu	Leu	Trp	Tyr	Leu	Gly	Arg
		275					280					285			
Ala	Leu	Cys	Leu	Leu	Val	Phe	Met	Phe	Trp	Gly	Ser	Pro	Tyr	Leu	Thr
	290					295					300				
Leu	Val	Thr	Leu	Ile	Asn	Leu	Pro	Leu	Leu	Phe	Leu	Leu	Pro	Lys	Lys
305					310					315					320
Leu	Gly	Lys	Val	His	Gln	Ser	Leu	Ala	Val	Lys	Val	Gln	Glu	Ser	Leu
				325					330					335	
Ala	Lys	Ser	Thr	Gln	Val	Ala	Leu	Glu	Ala	Leu	Ser	Ala	Met	Pro	Thr
			340					345					350		
Val	Arg	Ser	Phe	Ala	Asn	Glu	Glu	Gly	Glu	Ala	Gln	Lys	Phe	Arg	Gln

355		360		365
Lys Leu Glu Glu Met Lys Thr Leu Asn Lys Lys Glu Ala Leu Ala Tyr				
370		375		380
Val Ala Glu Val Trp Thr Thr Ser Val Ser Gly Met Leu Leu Lys Val				
385		390		400
Gly Ile Leu Tyr Leu Gly Gly Gln Leu Val Ile Arg Gly Thr Val Ser				
	405		410	415
Ser Gly Asn Leu Val Ser Phe Val Leu Tyr Gln Leu Gln Phe Thr Gln				
	420		425	430
Ala Val Gln Val Leu Leu Ser Leu Tyr Pro Ser Met Gln Lys Ala Val				
	435		440	445
Gly Ser Ser Glu Lys Ile Phe Glu Tyr Leu Asp Arg Thr Pro Cys Ser				
450		455		460
Pro Leu Ser Gly Ser Leu Ala Pro Ser Asn Met Lys Gly Leu Val Glu				
465		470		475
Phe Gln Asp Val Ser Phe Ala Tyr Pro Asn Gln Pro Lys Val Gln Val				
	485		490	495
Leu Gln Gly Leu Thr Phe Thr Leu His Pro Gly Thr Val Thr Ala Leu				
	500		505	510
Val Gly Pro Asn Gly Ser Gly Lys Ser Thr Val Ala Ala Leu Leu Gln				
	515		520	525
Asn Leu Tyr Gln Pro Thr Gly Gly Gln Leu Leu Leu Asp Gly Gln Arg				
530		535		540
Leu Val Gln Tyr Asp His His Tyr Leu His Thr Gln Val Ala Ala Val				
545		550		555
Gly Gln Glu Pro Leu Leu Phe Gly Arg Ser Phe Arg Glu Asn Ile Ala				
	565		570	575
Tyr Gly Leu Asn Arg Thr Pro Thr Met Glu Glu Ile Thr Ala Val Ala				
	580		585	590
Val Glu Ser Gly Ala His Asp Phe Ile Ser Gly Phe Pro Gln Gly Tyr				
	595		600	605
Asp Thr Glu Val Gly Glu Thr Gly Asn Gln Leu Ser Gly Gly Gln Arg				
	610		615	620
Gln Ala Val Ala Leu Ala Arg Ala Leu Ile Arg Lys Pro Leu Leu Leu				
625		630		635
Ile Leu Asp Asp Ala Thr Ser Ala Leu Asp Ala Gly Asn Gln Leu Arg				

				645						650						655			
Val	Gln	Arg	Leu	Leu	Tyr	Glu	Ser	Pro	Lys	Arg	Ala	Ser	Arg	Thr	Val				
			660					665					670						
Leu	Leu	Ile	Thr	Gln	Gln	Leu	Ser	Leu	Ala	Glu	Gln	Ala	His	His	Ile				
		675					680					685							
Leu	Phe	Leu	Arg	Glu	Gly	Ser	Val	Gly	Glu	Gln	Gly	Thr	His	Leu	Gln				
	690					695					700								
Leu	Met	Lys	Arg	Gly	Gly	Cys	Tyr	Arg	Ala	Met	Val	Glu	Ala	Leu	Ala				
705					710					715					720				

Ala Pro Ala Asp

<210> 10
 <211> 725
 <212> PRT
 <213> Rattus sp.

<400> 10

Met	Ala	Ala	His	Ala	Trp	Pro	Thr	Ala	Ala	Leu	Leu	Leu	Leu	Leu	Val
1				5					10					15	

Asp	Trp	Leu	Leu	Leu	Arg	Pro	Val	Leu	Pro	Gly	Ile	Phe	Ser	Leu	Leu
		20						25					30		

Val	Pro	Glu	Val	Pro	Leu	Leu	Arg	Val	Trp	Ala	Val	Gly	Leu	Ser	Arg
		35					40					45			

Trp	Ala	Ile	Leu	Gly	Leu	Gly	Val	Arg	Gly	Val	Leu	Gly	Val	Thr	Ala
	50					55					60				

Gly	Ala	Arg	Gly	Trp	Leu	Ala	Ala	Leu	Gln	Pro	Leu	Val	Ala	Ala	Leu
65					70					75					80

Gly	Leu	Ala	Leu	Pro	Gly	Leu	Ala	Ser	Phe	Arg	Lys	Leu	Ser	Ala	Trp
				85					90					95	

Gly	Ala	Leu	Arg	Glu	Gly	Asp	Asn	Ala	Gly	Leu	Leu	His	Trp	Asn	Ser
			100					105					110		

Arg	Leu	Asp	Ala	Phe	Val	Leu	Ser	Tyr	Val	Ala	Ala	Leu	Pro	Ala	Ala
		115					120					125			

Ala	Leu	Trp	His	Lys	Leu	Gly	Gly	Phe	Trp	Ala	Pro	Ser	Gly	His	Lys
	130					135					140				

Gly	Ala	Gly	Asp	Met	Leu	Cys	Arg	Met	Leu	Gly	Phe	Leu	Asp	Ser	Lys
145					150					155					160

Lys Gly Arg Leu His Leu Val Leu Val Leu Leu Ile Leu Ser Cys Leu
 165 170 175
 Gly Glu Met Ala Ile Pro Phe Phe Thr Gly Arg Ile Thr Asp Trp Ile
 180 185 190
 Leu Gln Asp Lys Thr Ala Pro Ser Phe Ala Arg Asn Met Trp Leu Met
 195 200 205
 Cys Ile Leu Thr Ile Ala Ser Thr Val Leu Glu Phe Ala Gly Asp Gly
 210 215 220
 Ile Tyr Asn Ile Thr Met Gly His Met His Ser Arg Val His Gly Glu
 225 230 235 240
 Val Phe Arg Ala Val Leu His Gln Glu Thr Gly Phe Phe Leu Lys Asn
 245 250 255
 Pro Thr Gly Ser Ile Thr Ser Arg Val Thr Glu Asp Thr Ser Asn Val
 260 265 270
 Cys Glu Ser Ile Ser Asp Lys Leu Asn Leu Phe Leu Trp Tyr Leu Gly
 275 280 285
 Arg Gly Leu Cys Leu Leu Ala Phe Met Ile Trp Gly Ser Phe Tyr Leu
 290 295 300
 Thr Val Val Thr Leu Leu Ser Leu Pro Leu Leu Phe Leu Leu Pro Arg
 305 310 315 320
 Arg Leu Gly Lys Val Tyr Gln Ser Leu Ala Val Lys Val Gln Glu Ser
 325 330 335
 Leu Ala Lys Ser Thr Gln Val Ala Leu Glu Ala Leu Ser Ala Met Pro
 340 345 350
 Thr Val Arg Ser Phe Ala Asn Glu Glu Gly Glu Ala Gln Lys Phe Arg
 355 360 365
 Gln Lys Leu Glu Glu Met Lys Pro Leu Asn Lys Lys Glu Ala Leu Ala
 370 375 380
 Tyr Val Thr Glu Val Trp Thr Met Ser Val Ser Gly Met Leu Leu Lys
 385 390 395 400
 Val Gly Ile Leu Tyr Leu Gly Gly Gln Leu Val Val Arg Gly Ala Val
 405 410 415
 Ser Ser Gly Asn Leu Val Ser Phe Val Leu Tyr Gln Leu Gln Phe Thr
 420 425 430
 Arg Ala Val Glu Val Leu Leu Ser Ile Tyr Pro Ser Met Gln Lys Ser
 435 440 445

Val Gly Ala Ser Glu Lys Ile Phe Glu Tyr Leu Asp Arg Thr Pro Cys
 450 455 460
 Ser Pro Leu Ser Gly Ser Leu Ala Pro Leu Asn Met Lys Gly Leu Val
 465 470 475 480
 Lys Phe Gln Asp Val Ser Phe Ala Tyr Pro Asn His Pro Asn Val Gln
 485 490 495
 Val Leu Gln Gly Leu Thr Phe Thr Leu Tyr Pro Gly Lys Val Thr Ala
 500 505 510
 Leu Val Gly Pro Asn Gly Ser Gly Lys Ser Thr Val Ala Ala Leu Leu
 515 520 525
 Gln Asn Leu Tyr Gln Pro Thr Gly Gly Lys Val Leu Leu Asp Gly Glu
 530 535 540
 Pro Leu Val Gln Tyr Asp His His Tyr Leu His Thr Gln Val Ala Ala
 545 550 555 560
 Val Gly Gln Glu Pro Leu Leu Phe Gly Arg Ser Phe Arg Glu Asn Ile
 565 570 575
 Ala Tyr Gly Leu Thr Arg Thr Pro Thr Met Glu Glu Ile Thr Ala Val
 580 585 590
 Ala Met Glu Ser Gly Ala His Asp Phe Ile Ser Gly Phe Pro Gln Gly
 595 600 605
 Tyr Asp Thr Glu Val Gly Glu Thr Gly Asn Gln Leu Ser Gly Gly Gln
 610 615 620
 Arg Gln Ala Val Ala Leu Ala Arg Ala Leu Ile Arg Lys Pro Arg Leu
 625 630 635 640
 Leu Ile Leu Asp Asp Ala Thr Ser Ala Leu Asp Ala Gly Asn Gln Leu
 645 650 655
 Arg Val Gln Arg Leu Leu Tyr Glu Ser Pro Glu Trp Ala Ser Arg Thr
 660 665 670
 Val Leu Leu Ile Thr Gln Gln Leu Ser Leu Ala Glu Arg Ala His His
 675 680 685
 Ile Leu Phe Leu Lys Glu Gly Ser Val Cys Glu Gln Gly Thr His Leu
 690 695 700
 Gln Leu Met Glu Arg Gly Gly Cys Tyr Arg Ser Met Val Glu Ala Leu
 705 710 715 720
 Ala Ala Pro Ser Asp
 725

<210> 11
 <211> 686
 <212> PRT
 <213> Homo sapiens

<400> 11

Met	Arg	Leu	Pro	Asp	Leu	Arg	Pro	Trp	Thr	Ser	Leu	Leu	Leu	Val	Asp
1				5					10					15	
Ala	Ala	Leu	Leu	Trp	Leu	Leu	Gln	Gly	Pro	Leu	Gly	Thr	Leu	Leu	Pro
			20					25						30	
Gln	Gly	Leu	Pro	Gly	Leu	Trp	Leu	Glu	Gly	Thr	Leu	Arg	Leu	Gly	Gly
		35					40					45			
Leu	Trp	Gly	Leu	Leu	Lys	Leu	Arg	Gly	Leu	Leu	Gly	Phe	Val	Gly	Thr
	50					55					60				
Leu	Leu	Leu	Pro	Leu	Cys	Leu	Ala	Thr	Pro	Leu	Thr	Val	Ser	Leu	Arg
65					70					75					80
Ala	Leu	Val	Ala	Gly	Ala	Ser	Arg	Ala	Pro	Pro	Ala	Arg	Val	Ala	Ser
				85					90					95	
Ala	Pro	Trp	Ser	Trp	Leu	Leu	Val	Gly	Tyr	Gly	Ala	Ala	Gly	Leu	Ser
			100					105					110		
Trp	Ser	Leu	Trp	Ala	Val	Leu	Ser	Pro	Pro	Gly	Ala	Gln	Glu	Lys	Glu
		115					120					125			
Gln	Asp	Gln	Val	Asn	Asn	Lys	Val	Leu	Met	Trp	Arg	Leu	Leu	Lys	Leu
	130					135					140				
Ser	Arg	Pro	Asp	Leu	Pro	Leu	Leu	Val	Ala	Ala	Phe	Phe	Phe	Leu	Val
145					150					155					160
Leu	Ala	Val	Leu	Gly	Glu	Thr	Leu	Ile	Pro	His	Tyr	Ser	Gly	Arg	Val
				165					170					175	
Ile	Asp	Ile	Leu	Gly	Gly	Asp	Phe	Asp	Pro	His	Ala	Phe	Ala	Ser	Ala
		180						185					190		
Ile	Phe	Phe	Met	Cys	Leu	Phe	Ser	Phe	Gly	Ser	Ser	Leu	Ser	Ala	Gly
		195					200					205			
Cys	Arg	Gly	Gly	Cys	Phe	Thr	Tyr	Thr	Met	Ser	Arg	Ile	Asn	Leu	Arg
	210					215					220				
Ile	Arg	Glu	Gln	Leu	Phe	Ser	Ser	Leu	Leu	Arg	Gln	Asp	Leu	Gly	Phe
225					230					235					240
Phe	Gln	Glu	Thr	Lys	Thr	Gly	Glu	Leu	Asn	Ser	Arg	Leu	Ser	Ser	Asp
				245					250					255	

Thr Thr Leu Met Ser Asn Trp Leu Pro Leu Asn Ala Asn Val Leu Leu
 260 265 270
 Arg Ser Leu Val Lys Val Val Gly Leu Tyr Gly Phe Met Leu Ser Ile
 275 280 285
 Ser Pro Arg Leu Thr Leu Leu Ser Leu Leu His Met Pro Phe Thr Ile
 290 295 300
 Ala Ala Glu Lys Val Tyr Asn Thr Arg His Gln Glu Val Leu Arg Glu
 305 310 315 320
 Ile Gln Asp Ala Val Ala Arg Ala Gly Gln Val Val Arg Glu Ala Val
 325 330 335
 Gly Gly Leu Gln Thr Val Arg Ser Phe Gly Ala Glu Glu His Glu Val
 340 345 350
 Cys Arg Tyr Lys Glu Ala Leu Glu Gln Cys Arg Gln Leu Tyr Trp Arg
 355 360 365
 Arg Asp Leu Glu Arg Ala Leu Tyr Leu Leu Val Arg Arg Val Leu His
 370 375 380
 Leu Gly Val Gln Met Leu Met Leu Ser Cys Gly Leu Gln Gln Met Gln
 385 390 395 400
 Asp Gly Glu Leu Thr Gln Gly Ser Leu Leu Ser Phe Met Ile Tyr Gln
 405 410 415
 Glu Ser Val Gly Ser Tyr Val Gln Thr Leu Val Tyr Ile Tyr Gly Asp
 420 425 430
 Met Leu Ser Asn Val Gly Ala Ala Glu Lys Val Phe Ser Tyr Met Asp
 435 440 445
 Arg Gln Pro Asn Leu Pro Ser Pro Gly Thr Leu Ala Pro Thr Thr Leu
 450 455 460
 Gln Gly Val Val Lys Phe Gln Asp Val Ser Phe Ala Tyr Pro Asn Arg
 465 470 475 480
 Pro Asp Arg Pro Val Leu Lys Gly Leu Thr Phe Thr Leu Arg Pro Gly
 485 490 495
 Glu Val Thr Ala Leu Val Gly Pro Asn Gly Ser Gly Lys Ser Thr Val
 500 505 510
 Ala Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly Gln Val Leu
 515 520 525
 Leu Asp Glu Lys Pro Ile Ser Gln Tyr Glu His Cys Tyr Leu His Ser
 530 535 540

Gln Val Val Ser Val Gly Gln Glu Pro Val Leu Phe Ser Gly Ser Val
 545 550 555 560
 Arg Asn Asn Ile Ala Tyr Gly Leu Gln Ser Cys Glu Asp Asp Lys Val
 565 570 575
 Met Ala Ala Ala Gln Ala Ala His Ala Asp Asp Phe Ile Gln Glu Met
 580 585 590
 Glu His Gly Ile Tyr Thr Asp Val Gly Glu Lys Gly Ser Gln Leu Ala
 595 600 605
 Ala Gly Gln Lys Gln Arg Leu Ala Ile Ala Arg Ala Leu Val Arg Asp
 610 615 620
 Pro Arg Val Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Val Gln
 625 630 635 640
 Cys Glu Gln Ala Leu Gln Asp Trp Asn Ser Arg Gly Asp Arg Thr Val
 645 650 655
 Leu Val Ile Ala His Arg Leu Gln Thr Val Gln Arg Ala His Gln Ile
 660 665 670
 Leu Val Leu Gln Glu Gly Lys Leu Gln Lys Leu Ala Gln Leu
 675 680 685

<210> 12
 <211> 702
 <212> PRT
 <213> Mus musculus

<400> 12
 Met Ala Leu Ser Tyr Leu Arg Pro Trp Val Ser Leu Leu Leu Ala Asp
 1 5 10 15
 Met Ala Leu Leu Gly Leu Leu Gln Gly Ser Leu Gly Asn Leu Leu Pro
 20 25 30
 Gln Gly Leu Pro Gly Leu Trp Ile Glu Gly Thr Leu Arg Leu Gly Val
 35 40 45
 Leu Trp Gly Leu Leu Lys Val Gly Glu Leu Leu Gly Leu Val Gly Thr
 50 55 60
 Leu Leu Pro Leu Leu Cys Leu Ala Thr Pro Leu Phe Phe Ser Leu Arg
 65 70 75 80
 Ala Leu Val Gly Gly Thr Ala Ser Thr Ser Val Val Arg Val Ala Ser
 85 90 95
 Ala Ser Trp Gly Trp Leu Leu Ala Gly Tyr Gly Ala Val Ala Leu Ser

100					105					110					
Trp	Ala	Val	Trp	Ala	Val	Leu	Ser	Pro	Ala	Gly	Val	Gln	Glu	Lys	Glu
		115					120					125			
Pro	Gly	Gln	Glu	Asn	Arg	Thr	Leu	Met	Lys	Arg	Leu	Leu	Lys	Leu	Ser
	130					135					140				
Arg	Pro	Asp	Leu	Pro	Phe	Leu	Ile	Ala	Ala	Phe	Phe	Phe	Leu	Val	Val
145					150					155					160
Ala	Val	Trp	Gly	Glu	Thr	Leu	Ile	Pro	Arg	Tyr	Ser	Gly	Arg	Val	Ile
				165					170					175	
Asp	Ile	Leu	Gly	Gly	Asp	Phe	Asp	Pro	Asp	Ala	Phe	Ala	Ser	Ala	Ile
			180					185					190		
Phe	Phe	Met	Cys	Leu	Phe	Ser	Val	Gly	Ser	Ser	Phe	Ser	Ala	Gly	Cys
		195					200					205			
Arg	Gly	Gly	Ser	Phe	Leu	Phe	Thr	Met	Ser	Arg	Ile	Asn	Leu	Arg	Ile
	210					215					220				
Arg	Glu	Gln	Leu	Phe	Ser	Ser	Leu	Leu	Arg	Gln	Asp	Leu	Gly	Phe	Phe
225					230					235					240
Gln	Glu	Thr	Lys	Thr	Gly	Glu	Leu	Asn	Ser	Arg	Leu	Ser	Ser	Asp	Thr
				245					250					255	
Ser	Leu	Met	Ser	Arg	Trp	Leu	Pro	Phe	Asn	Ala	Asn	Ile	Leu	Leu	Arg
			260					265					270		
Ser	Leu	Val	Lys	Val	Val	Gly	Leu	Tyr	Phe	Phe	Met	Leu	Gln	Val	Ser
		275					280					285			
Pro	Arg	Leu	Thr	Phe	Leu	Ser	Leu	Leu	Asp	Leu	Pro	Leu	Thr	Ile	Ala
	290					295					300				
Ala	Glu	Lys	Val	Tyr	Asn	Pro	Arg	His	Gln	Ala	Val	Leu	Lys	Glu	Ile
305					310					315					320
Gln	Asp	Ala	Val	Ala	Lys	Ala	Gly	Gln	Val	Val	Arg	Glu	Ala	Val	Gly
				325					330					335	
Gly	Leu	Gln	Thr	Val	Arg	Ser	Phe	Gly	Ala	Glu	Glu	Gln	Glu	Val	Ser
			340					345					350		
His	Tyr	Lys	Glu	Ala	Leu	Glu	Arg	Cys	Arg	Gln	Leu	Trp	Trp	Arg	Arg
		355					360					365			
Asp	Leu	Glu	Lys	Asp	Val	Tyr	Leu	Val	Ile	Arg	Arg	Val	Met	Ala	Leu
	370					375					380				
Gly	Met	Gln	Val	Leu	Ile	Leu	Asn	Cys	Gly	Val	Gln	Gln	Ile	Leu	Ala

385		390		395		400									
Gly	Glu	Val	Thr	Arg	Gly	Gly	Leu	Leu	Ser	Phe	Leu	Leu	Tyr	Gln	Glu
				405					410					415	
Glu	Val	Gly	Gln	Tyr	Val	Arg	Asn	Leu	Val	Tyr	Met	Tyr	Gly	Asp	Met
			420					425					430		
Leu	Ser	Asn	Val	Gly	Ala	Ala	Glu	Lys	Val	Phe	Ser	Tyr	Leu	Asp	Arg
			435				440					445			
Lys	Pro	Asn	Leu	Pro	Gln	Pro	Gly	Ile	Leu	Ala	Pro	Pro	Trp	Leu	Glu
	450					455					460				
Gly	Arg	Val	Glu	Phe	Gln	Asp	Val	Ser	Phe	Ser	Tyr	Pro	Arg	Arg	Pro
465					470					475					480
Glu	Lys	Pro	Val	Leu	Gln	Gly	Leu	Thr	Phe	Thr	Leu	His	Pro	Gly	Thr
				485					490					495	
Val	Thr	Ala	Leu	Val	Gly	Pro	Asn	Gly	Ser	Gly	Lys	Ser	Thr	Val	Ala
			500					505					510		
Ala	Leu	Leu	Gln	Asn	Leu	Tyr	Gln	Pro	Thr	Gly	Gly	Gln	Leu	Leu	Leu
		515					520					525			
Asp	Gly	Glu	Pro	Leu	Thr	Glu	Tyr	Asp	His	His	Tyr	Leu	His	Arg	Gln
	530					535					540				
Val	Val	Leu	Val	Gly	Gln	Glu	Pro	Val	Leu	Phe	Ser	Gly	Ser	Val	Lys
545					550					555					560
Asp	Asn	Ile	Ala	Tyr	Gly	Leu	Arg	Asp	Cys	Glu	Asp	Ala	Gln	Val	Met
				565					570					575	
Ala	Ala	Ala	Gln	Ala	Ala	Cys	Ala	Asp	Asp	Phe	Ile	Gly	Glu	Met	Thr
			580					585					590		
Asn	Gly	Ile	Asn	Thr	Glu	Ile	Gly	Glu	Lys	Gly	Gly	Gln	Leu	Ala	Val
		595					600					605			
Gly	Gln	Lys	Gln	Arg	Leu	Ala	Ile	Ala	Arg	Ala	Leu	Val	Arg	Asn	Pro
	610					615					620				
Arg	Val	Leu	Ile	Leu	Asp	Glu	Ala	Thr	Ser	Ala	Leu	Asp	Ala	Gln	Cys
625					630					635					640
Glu	Gln	Ala	Leu	Gln	Asn	Trp	Arg	Ser	Gln	Gly	Asp	Arg	Thr	Met	Leu
				645					650					655	
Val	Ile	Ala	His	Arg	Leu	His	Thr	Val	Gln	Asn	Ala	Asp	Gln	Val	Leu
			660					665					670		
Val	Leu	Lys	Gln	Gly	Arg	Leu	Val	Glu	His	Asp	Gln	Leu	Arg	Asp	Gly

675	680	685
Gln Asp Val Tyr Ala His Leu Val Gln Gln Arg Leu Glu Ala		
690	695	700

<210> 13
 <211> 703
 <212> PRT
 <213> Rattus sp.

<400> 13

Met Ala Leu Ser His Pro Arg Pro Trp Ala Ser Leu Leu Leu Val Asp
1 5 10 15
Leu Ala Leu Leu Gly Leu Leu Gln Ser Ser Leu Gly Thr Leu Leu Pro
20 25 30
Pro Gly Leu Pro Gly Leu Trp Leu Glu Gly Thr Leu Arg Leu Gly Val
35 40 45
Leu Trp Gly Leu Leu Lys Val Gly Gly Leu Leu Arg Leu Val Gly Thr
50 55 60
Phe Leu Pro Leu Leu Cys Leu Thr Asn Pro Leu Phe Phe Ser Leu Arg
65 70 75 80
Ala Leu Val Gly Ser Thr Met Ser Thr Ser Val Val Arg Val Ala Ser
85 90 95
Ala Ser Trp Gly Trp Leu Leu Ala Asp Tyr Gly Ala Val Ala Leu Ser
100 105 110
Leu Ala Val Trp Ala Val Leu Ser Pro Ala Gly Ala Gln Glu Lys Glu
115 120 125
Pro Gly Gln Glu Asn Asn Arg Ala Leu Met Ile Arg Leu Leu Arg Leu
130 135 140
Ser Lys Pro Asp Leu Pro Phe Leu Ile Val Ala Phe Ile Phe Leu Ala
145 150 155 160
Met Ala Val Trp Trp Glu Met Phe Ile Pro His Tyr Ser Gly Arg Val
165 170 175
Ile Asp Ile Leu Gly Gly Asp Phe Asp Pro Asp Ala Phe Ala Ser Ala
180 185 190
Ile Phe Phe Met Cys Leu Phe Ser Val Gly Ser Ser Leu Ser Ala Gly
195 200 205
Cys Arg Gly Gly Ser Phe Leu Phe Ala Glu Ser Arg Ile Asn Leu Arg
210 215 220

Ile	Arg	Glu	Gln	Leu	Phe	Ser	Ser	Leu	Leu	Arg	Gln	Asp	Leu	Ala	Phe	225	230	235	240
Phe	Gln	Glu	Thr	Lys	Thr	Gly	Glu	Leu	Asn	Ser	Arg	Leu	Ser	Ser	Asp	245	250	255	
Thr	Ser	Leu	Met	Ser	Gln	Trp	Leu	Ser	Leu	Asn	Ala	Asn	Ile	Leu	Leu	260	265	270	
Arg	Ser	Leu	Val	Lys	Val	Val	Gly	Leu	Tyr	Tyr	Phe	Met	Leu	Gln	Val	275	280	285	
Ser	Pro	Arg	Leu	Thr	Phe	Leu	Ser	Leu	Leu	Asp	Leu	Pro	Leu	Thr	Ile	290	295	300	
Ala	Ala	Glu	Lys	Val	Tyr	Asn	Pro	Arg	His	Gln	Ala	Val	Leu	Lys	Glu	305	310	315	320
Ile	Gln	Asp	Ala	Val	Ala	Lys	Ala	Gly	Gln	Val	Val	Arg	Glu	Ala	Val	325	330	335	
Gly	Gly	Leu	Gln	Thr	Val	Arg	Ser	Phe	Gly	Ala	Glu	Glu	Gln	Glu	Val	340	345	350	
Arg	Arg	Tyr	Lys	Glu	Ala	Leu	Glu	Arg	Cys	Arg	Gln	Leu	Trp	Trp	Arg	355	360	365	
Arg	Asp	Leu	Glu	Lys	Ser	Leu	Tyr	Leu	Val	Ile	Gln	Arg	Val	Met	Ala	370	375	380	
Leu	Gly	Met	Gln	Val	Leu	Ile	Leu	Asn	Val	Gly	Val	Gln	Gln	Ile	Leu	385	390	395	400
Ala	Gly	Glu	Val	Thr	Arg	Gly	Gly	Leu	Leu	Ser	Phe	Leu	Leu	Tyr	Gln	405	410	415	
Glu	Glu	Val	Gly	His	His	Val	Gln	Asn	Leu	Val	Tyr	Met	Tyr	Gly	Asp	420	425	430	
Met	Leu	Ser	Asn	Val	Gly	Ala	Ala	Glu	Lys	Val	Phe	Ser	Tyr	Leu	Asp	435	440	445	
Arg	Arg	Pro	Asn	Leu	Pro	Asn	Pro	Gly	Thr	Leu	Ala	Pro	Pro	Arg	Leu	450	455	460	
Glu	Gly	Arg	Val	Glu	Phe	Gln	Asp	Val	Ser	Phe	Ser	Tyr	Pro	Ser	Arg	465	470	475	480
Pro	Glu	Lys	Pro	Val	Leu	Gln	Gly	Leu	Thr	Phe	Thr	Leu	His	Pro	Gly	485	490	495	
Lys	Val	Thr	Ala	Leu	Val	Gly	Pro	Asn	Gly	Ser	Gly	Lys	Ser	Thr	Val	500	505	510	

Ala Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly Gln Leu Leu
 515 520 525
 Leu Asp Gly Glu Pro Leu Val Gln Tyr Asp His His Tyr Leu His Arg
 530 535 540
 Gln Val Val Leu Val Gly Gln Glu Pro Val Leu Phe Ser Gly Ser Val
 545 550 555 560
 Lys Asp Asn Ile Ala Tyr Gly Leu Arg Asp Cys Glu Asp Ala Gln Val
 565 570 575
 Met Ala Ala Ala Gln Ala Ala Cys Ala Asp Asp Phe Ile Gly Glu Met
 580 585 590
 Thr Asn Gly Ile Asn Thr Glu Ile Gly Glu Lys Gly Ser Gln Leu Ala
 595 600 605
 Val Gly Gln Lys Gln Arg Leu Ala Ile Ala Arg Ala Leu Val Arg Asn
 610 615 620
 Pro Arg Val Leu Ile Leu Asp Glu Ala Thr Ser Ala Leu Asp Ala Glu
 625 630 635 640
 Cys Glu Gln Ala Leu Gln Thr Trp Arg Ser Gln Glu Asp Arg Thr Met
 645 650 655
 Leu Val Ile Ala His Arg Leu His Thr Val Gln Asn Ala Asp Gln Val
 660 665 670
 Leu Val Leu Lys Gln Gly Gln Leu Val Glu His Asp Gln Leu Arg Asp
 675 680 685
 Glu Gln Asp Val Tyr Ala His Leu Val Gln Gln Arg Leu Glu Ala
 690 695 700

<210> 14
 <211> 766
 <212> PRT
 <213> Homo sapiens

<400> 14
 Met Arg Leu Trp Lys Ala Val Val Val Thr Leu Ala Phe Met Ser Val
 1 5 10 15
 Asp Ile Cys Val Thr Thr Ala Ile Tyr Val Phe Ser His Leu Asp Arg
 20 25 30
 Ser Leu Leu Glu Asp Ile Arg His Phe Asn Ile Phe Asp Ser Val Leu
 35 40 45
 Asp Leu Trp Ala Ala Cys Leu Tyr Arg Ser Cys Leu Leu Leu Gly Ala
 50 55 60

Thr	Ile	Gly	Val	Ala	Lys	Asn	Ser	Ala	Leu	Gly	Pro	Arg	Arg	Leu	Arg	65	70	75	80
Ala	Ser	Trp	Leu	Val	Ile	Thr	Leu	Val	Cys	Leu	Phe	Val	Gly	Ile	Tyr	85	90	95	
Ala	Met	Val	Lys	Leu	Leu	Leu	Phe	Ser	Glu	Val	Arg	Arg	Pro	Ile	Arg	100	105	110	
Asp	Pro	Trp	Phe	Trp	Ala	Leu	Phe	Val	Trp	Thr	Tyr	Ile	Ser	Leu	Gly	115	120	125	
Ala	Ser	Phe	Leu	Leu	Trp	Trp	Leu	Leu	Ser	Thr	Val	Arg	Pro	Gly	Thr	130	135	140	
Gln	Ala	Leu	Glu	Pro	Gly	Ala	Ala	Thr	Glu	Ala	Glu	Gly	Phe	Pro	Gly	145	150	155	160
Ser	Gly	Arg	Pro	Pro	Pro	Glu	Gln	Ala	Ser	Gly	Ala	Thr	Leu	Gln	Lys	165	170	175	
Leu	Leu	Ser	Tyr	Thr	Lys	Pro	Asp	Val	Ala	Phe	Leu	Val	Ala	Ala	Ser	180	185	190	
Phe	Phe	Leu	Ile	Val	Ala	Ala	Leu	Gly	Glu	Thr	Phe	Leu	Pro	Tyr	Tyr	195	200	205	
Thr	Gly	Arg	Ala	Ile	Asp	Gly	Ile	Val	Ile	Gln	Lys	Ser	Met	Asp	Gln	210	215	220	
Phe	Ser	Thr	Ala	Val	Val	Ile	Val	Cys	Leu	Leu	Ala	Ile	Gly	Ser	Ser	225	230	235	240
Phe	Ala	Ala	Gly	Ile	Arg	Gly	Gly	Ile	Phe	Thr	Leu	Ile	Phe	Ala	Arg	245	250	255	
Leu	Asn	Ile	Arg	Leu	Arg	Asn	Cys	Leu	Phe	Arg	Ser	Leu	Val	Ser	Gln	260	265	270	
Glu	Thr	Ser	Phe	Phe	Asp	Glu	Asn	Arg	Thr	Gly	Asp	Leu	Ile	Ser	Arg	275	280	285	
Leu	Thr	Ser	Asp	Thr	Thr	Met	Val	Ser	Asp	Leu	Val	Ser	Gln	Asn	Ile	290	295	300	
Asn	Val	Phe	Leu	Arg	Asn	Thr	Val	Lys	Val	Thr	Gly	Val	Val	Val	Phe	305	310	315	320
Met	Phe	Ser	Leu	Ser	Trp	Gln	Leu	Ser	Leu	Val	Thr	Phe	Met	Gly	Phe	325	330	335	
Pro	Ile	Ile	Met	Met	Val	Ser	Asn	Ile	Tyr	Gly	Lys	Tyr	Tyr	Lys	Arg	340	345	350	

Leu Ser Lys Glu Val Gln Asn Ala Leu Ala Arg Ala Ser Asn Thr Ala
 355 360 365
 Glu Glu Thr Ile Ser Ala Met Lys Thr Val Arg Ser Phe Ala Asn Glu
 370 375 380
 Glu Glu Glu Ala Glu Val Tyr Leu Arg Lys Leu Gln Gln Val Tyr Lys
 385 390 395 400
 Leu Asn Arg Lys Glu Ala Ala Ala Tyr Met Tyr Tyr Val Trp Gly Ser
 405 410 415
 Gly Leu Thr Leu Leu Val Val Gln Val Ser Ile Leu Tyr Tyr Gly Gly
 420 425 430
 His Leu Val Ile Ser Gly Gln Met Thr Ser Gly Asn Leu Ile Ala Phe
 435 440 445
 Ile Ile Tyr Glu Phe Val Leu Gly Asp Cys Met Glu Ser Val Gly Ser
 450 455 460
 Val Tyr Ser Gly Leu Met Gln Gly Val Gly Ala Ala Glu Lys Val Phe
 465 470 475 480
 Glu Phe Ile Asp Arg Gln Pro Thr Met Val His Asp Gly Ser Leu Ala
 485 490 495
 Pro Asp His Leu Glu Gly Arg Val Asp Phe Glu Asn Val Thr Phe Thr
 500 505 510
 Tyr Arg Thr Arg Pro His Thr Gln Val Leu Gln Asn Val Ser Phe Ser
 515 520 525
 Leu Ser Pro Gly Lys Val Thr Ala Leu Val Gly Pro Ser Gly Ser Gly
 530 535 540
 Arg Ser Ser Cys Val Asn Ile Leu Glu Asn Phe Tyr Pro Leu Glu Gly
 545 550 555 560
 Gly Arg Val Leu Leu Asp Gly Lys Pro Ile Ser Ala Tyr Asp His Lys
 565 570 575
 Tyr Leu His Arg Val Ile Ser Leu Val Ser Gln Glu Pro Val Leu Phe
 580 585 590
 Ala Arg Ser Ile Thr Asp Asn Ile Ser Tyr Gly Leu Pro Thr Val Pro
 595 600 605
 Phe Glu Met Val Val Glu Ala Ala Gln Lys Ala Asn Ala His Gly Phe
 610 615 620
 Ile Met Glu Leu Gln Asp Gly Tyr Ser Thr Glu Thr Gly Glu Lys Gly
 625 630 635 640

Ala Gln Leu Ser Gly Gly Gln Lys Gln Arg Val Ala Met Ala Arg Ala
645 650 655

Leu Val Arg Asn Pro Pro Val Leu Ile Leu Asp Glu Ala Thr Ser Ala
660 665 670

Leu Asp Ala Glu Ser Glu Tyr Leu Ile Gln Gln Ala Ile His Gly Asn
675 680 685

Leu Gln Lys His Thr Val Leu Ile Ile Ala His Arg Leu Ser Thr Val
690 695 700

Glu His Ala His Leu Ile Val Val Leu Asp Lys Gly Arg Val Val Gln
705 710 715 720

Gln Gly Thr His Gln Gln Leu Leu Ala Gln Gly Gly Leu Tyr Ala Lys
725 730 735

Leu Val Gln Arg Gln Met Leu Gly Leu Gln Pro Ala Ala Asp Phe Thr
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Ala Gly His Asn Glu Pro Val Ala Asn Gly Ser His Lys Ala
755 760 765

<210> 15

<211> 766

<212> PRT

<213> Homo sapiens

<400> 15

Met Arg Leu Trp Lys Ala Val Val Val Thr Leu Ala Phe Met Ser Val
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Asp Ile Cys Val Thr Thr Ala Ile Tyr Val Phe Ser His Leu Asp Arg
20 25 30

Ser Leu Leu Glu Asp Ile Arg His Phe Asn Ile Phe Asp Ser Val Leu
35 40 45

Asp Leu Trp Ala Ala Cys Leu Tyr Arg Ser Cys Leu Leu Gly Ala
50 55 60

Thr Ile Gly Val Ala Lys Asn Ser Ala Leu Gly Pro Arg Arg Leu Arg
65 70 75 80

Ala Ser Trp Leu Val Ile Thr Leu Val Cys Leu Phe Val Gly Ile Tyr
85 90 95

Ala Met Val Lys Leu Leu Leu Phe Ser Glu Val Arg Arg Pro Ile Arg
100 105 110

Asp Pro Trp Phe Trp Ala Leu Phe Val Trp Thr Tyr Ile Ser Leu Gly

115	120	125
Ala Ser Phe Leu Leu Trp Trp Leu Leu Ser Thr Val Arg Pro Gly Thr		
130	135	140
Gln Ala Leu Glu Pro Gly Ala Ala Thr Glu Ala Glu Gly Phe Pro Gly		
145	150	155
Ser Gly Arg Pro Pro Pro Glu Gln Ala Ser Gly Ala Thr Leu Gln Lys		
	165	170
Leu Leu Ser Tyr Thr Lys Pro Asp Val Ala Phe Leu Val Ala Ala Ser		
	180	185
Phe Phe Leu Ile Val Ala Ala Leu Gly Glu Thr Phe Leu Pro Tyr Tyr		
	195	200
Thr Gly Arg Ala Ile Asp Gly Ile Val Ile Gln Lys Ser Met Asp Gln		
210	215	220
Phe Ser Thr Ala Val Val Ile Val Cys Leu Leu Ala Ile Gly Ser Ser		
225	230	235
Phe Ala Ala Gly Ile Arg Gly Gly Ile Phe Thr Leu Ile Phe Ala Arg		
	245	250
Leu Asn Ile Arg Leu Arg Asn Cys Leu Phe Arg Ser Leu Val Ser Gln		
	260	265
Glu Thr Ser Phe Phe Asp Glu Asn Arg Thr Gly Asp Leu Ile Ser Arg		
	275	280
Leu Thr Ser Asp Thr Thr Met Val Ser Asp Leu Val Ser Gln Asn Ile		
290	295	300
Asn Val Phe Leu Arg Asn Thr Val Lys Val Thr Gly Val Val Val Phe		
305	310	315
Met Phe Ser Leu Ser Trp Gln Leu Ser Leu Val Thr Phe Met Gly Phe		
	325	330
Pro Ile Ile Met Met Val Ser Asn Ile Tyr Gly Lys Tyr Tyr Lys Arg		
	340	345
Leu Ser Lys Glu Val Gln Asn Ala Leu Ala Arg Ala Ser Asn Thr Ala		
	355	360
Glu Glu Thr Ile Ser Ala Met Lys Thr Val Arg Ser Phe Ala Asn Glu		
370	375	380
Glu Glu Glu Ala Glu Val Tyr Leu Arg Lys Leu Gln Gln Val Tyr Lys		
385	390	395
Leu Asn Arg Lys Glu Ala Ala Ala Tyr Met Tyr Tyr Val Trp Gly Ser		

405					410					415					
Gly	Leu	Thr	Leu	Leu	Val	Val	Gln	Val	Ser	Ile	Leu	Tyr	Tyr	Gly	Gly
			420					425					430		
His	Leu	Val	Ile	Ser	Gly	Gln	Met	Thr	Ser	Gly	Asn	Leu	Ile	Ala	Phe
		435					440					445			
Ile	Ile	Tyr	Glu	Phe	Val	Leu	Gly	Asp	Cys	Met	Glu	Ser	Val	Gly	Ser
		450				455					460				
Val	Tyr	Ser	Gly	Leu	Met	Gln	Gly	Val	Gly	Ala	Ala	Glu	Lys	Val	Phe
465					470					475					480
Glu	Phe	Ile	Asp	Arg	Gln	Pro	Thr	Met	Val	His	Asp	Gly	Ser	Leu	Ala
				485					490					495	
Pro	Asp	His	Leu	Glu	Gly	Arg	Val	Asp	Phe	Glu	Asn	Val	Thr	Phe	Thr
			500					505					510		
Tyr	Arg	Thr	Arg	Pro	His	Thr	Gln	Val	Leu	Gln	Asn	Val	Ser	Phe	Ser
		515					520					525			
Leu	Ser	Pro	Gly	Lys	Val	Thr	Ala	Leu	Val	Gly	Pro	Ser	Gly	Ser	Gly
		530				535					540				
Lys	Ser	Ser	Cys	Val	Asn	Ile	Leu	Glu	Asn	Phe	Tyr	Pro	Leu	Glu	Gly
545					550					555					560
Gly	Arg	Val	Leu	Leu	Asp	Gly	Lys	Pro	Ile	Ser	Ala	Tyr	Asp	His	Lys
			565						570					575	
Tyr	Leu	His	Arg	Val	Ile	Ser	Leu	Val	Ser	Gln	Glu	Pro	Val	Leu	Phe
			580					585					590		
Ala	Arg	Ser	Ile	Thr	Asp	Asn	Ile	Ser	Tyr	Gly	Leu	Pro	Thr	Val	Pro
		595					600					605			
Phe	Glu	Met	Val	Val	Glu	Ala	Ala	Gln	Lys	Ala	Asn	Ala	His	Gly	Phe
		610				615					620				
Ile	Met	Glu	Leu	Gln	Asp	Gly	Tyr	Ser	Thr	Glu	Thr	Gly	Glu	Lys	Gly
625					630					635					640
Ala	Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Val	Ala	Met	Ala	Arg	Ala
				645					650					655	
Leu	Val	Arg	Asn	Pro	Pro	Val	Leu	Ile	Leu	Asn	Glu	Ala	Thr	Ser	Ala
			660					665					670		
Leu	Asp	Ala	Glu	Ser	Glu	Tyr	Leu	Ile	Gln	Gln	Ala	Ile	His	Gly	Asn
		675					680					685			
Leu	Gln	Lys	His	Thr	Val	Leu	Ile	Ile	Ala	His	Arg	Leu	Ser	Thr	Val

690					695					700					
Glu	His	Ala	His	Leu	Ile	Val	Val	Leu	Asp	Lys	Gly	Arg	Val	Val	Gln
705					710					715					720
Gln	Gly	Thr	His	Gln	Gln	Leu	Leu	Ala	Gln	Gly	Gly	Leu	Tyr	Ala	Lys
				725					730					735	
Leu	Val	Gln	Arg	Gln	Met	Leu	Gly	Leu	Gln	Pro	Ala	Ala	Asp	Phe	Thr
			740					745					750		
Ala	Gly	His	Asn	Glu	Pro	Val	Ala	Asn	Gly	Ser	His	Lys	Ala		
		755					760					765			

<210> 16

<211> 234

<212> DNA

<213> Homo sapiens

<220>

<223> Corresponds to GenBank Acc: F06569

<220>

<221> misc_feature

<222> 9, 108

<223> n = A,T,C or G

<400> 16

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gcggaacccc ccagtcctca tcctggatga agccaccagc gctttggatg ccgagagcga 180
gtatctgatc cagcaggcca tccatggcaa cctgcagaag cacacggtac tcat      234

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<210> 17

<211> 388

<212> DNA

<213> Homo sapiens

<220>

<223> Corresponds to GenBank Acc: R25718

<220>

<221> misc_feature

<222> 8, 109, 360, 387

<223> n = A,T,C or G

<400> 17

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agggcgccca gctgtcaggt ggccagaagc agcgggtggc catggccng gctctggtgc 120
ggaaccccc agtcctcatc ctggatgaag ccaccagcg tttggatgcc gagagcgagt 180
atctgatcca gcaggccatc catggcaacc tgtcagaagc acacggtact catcatcgcg 240

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cacccgctga gcaccgtgga gcacgcgcac ctcattgtgg tgctggacaa gggccgcgta 300
gtgcagcagg gcaccacca gcagcttgct tgccccaggg cgggctttta cggcaagctn 360
gttgacgcgg cagatgtttg gggtttna 388

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<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: primer

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<400> 18
ggatgggcct gcgcacctct 20

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<210> 19
<211> 18
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: primer

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<400> 19
cactcatgaa ggccaaag 18

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<210> 20
<211> 6
<212> DNA
<213> Homo sapiens

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<400> 20
aataaa 6

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